

## REMARKS

This paper is responsive to the Office Action mailed January 12, 2007 ("Office Action"). Applicant appreciates the apparent withdrawal of the prior rejections based on U.S. Patent No. 6,239,407 to Thommes. Applicant respectfully requests reconsideration and withdrawal of the new rejections of Claims 1-48 for at least the reasons discussed below.

### **Independent Claims 1, 20, 25 and 40 are patentable**

Independent Claims 1, 20, 25 and 40 now stand rejected as allegedly anticipated by U.S. Patent No. 5,519,306 to Itoh et al. ("Itoh"). Office Action, pp. 3 and 4. Claim 1 recites:

A power conversion apparatus comprising:  
a DC link comprising first and second DC busses and a reference bus;  
a DC generator circuit coupled to the DC link and operative to generate first and second DC voltages with respect to the reference bus on respective ones of the first and second DC busses; and  
a precharge circuit coupled to the DC link and operative to charge a first capacitance between the first DC bus and the reference bus and to transfer charge from the charged first capacitance to a second capacitance between the second DC bus and the reference bus.

The Office Action asserts that such recitations are disclosed by Itoh in Figs. 3-6, 8-9, 11-14 and 16-17, specifically alleging that batteries 38a and 38b shown in Fig. 6 of Itoh correspond to the recited "precharge circuit." Office Action, p. 3. Applicant submits that Itoh does not provide such teachings.

With reference to Fig. 6, Itoh states:

When the AC voltage input is interrupted due to power, DC voltages of the batteries 38a and 38b are transmitted to boosting chopper circuits 31 and 32 respectively through diodes 39 and 40. The actions after boosting chopper circuits 31 and 32 are the same as previously explained.

DC output voltage settings of batteries 38a and 38b are to be slightly lower than said +V1 and -V2.

When the excessive load current flows due to unexpected causes, load current detection circuit 13 and the output voltage detection circuit 12 detect such are current, switch the contactor of change over circuit 14 to the direct supply line 1 side, AC power directly to load 6 through AC input terminal 2 and direct

supply line 1. In this case, the other input terminal and output terminal 9 are connected by a common line 16, and there is no problem.

Batteries 38a and 38b are charged when the AC voltage is inputted by the charging circuit which is not shown.

Itoh, column 2, lines 42-58. There appears to be nothing in this description of the batteries 38a, 38b of Fig. 6 that discloses or suggests that the batteries 38a, 38b serve as "a precharge circuit coupled to the DC link and operative to charge a first capacitance between the first DC bus and the reference bus *and to transfer charge from the charged first capacitance to a second capacitance between the second DC bus and the reference bus*," as recited in Claim 1. Accordingly, Applicant submits that Itoh does not supply the teachings alleged in the Office Action and, for at least these reasons, Applicant submits that Claim 1 is patentable over Itoh. Applicant further submits that independent Claims 20 and 25 are patentable over Itoh for at least similar reasons.

Independent Claim 19 stands rejected as allegedly anticipated by U.S. Patent No. 6,329,636 to Geissler ("Geissler"). Office Action, p. 3. Claim 19 recites:

A power conversion apparatus comprising:  
a DC bus;  
a buck converter circuit coupled to the DC bus and operative to charge a capacitance coupled to the DC bus; and  
a boost converter circuit coupled to the DC bus and operative to commence generating a DC voltage on the DC bus from an AC source and/or a DC source after the buck converter circuit precharges the DC bus.

The Office Action alleges that Figs. 1-5 of Geissler discloses such recitations, stating:

Geissler discloses claimed subject matters a power conversion apparatus (figure 1-5), including a buck converter, a boost converter and a DC bus (column 3, lines 15-30 and column 4, line 1-5) and a precharge circuit (figure 1, item 101).

Office Action, p. 4.

As an initial matter, the Office Action fails to clearly indicate which of the structures shown in Figs. 1-5 of Geissler allegedly correspond to the recited components of Claim 19. The cited portions from columns 3 and 4 of Geissler state:

The input circuit includes a rectifier in one embodiment.

The preregulator magnitude is greater than the first magnitude, and the preregulator includes a boost converter in various alternatives. The boost converter may include a slow voltage switched switch and a slow current switched switch.

The output circuit includes an inverter, which may include a switched snubber in other alternatives.

The preregulator magnitude is greater than the control power magnitude, and/or the control power circuit includes a buck converter in additional embodiments.

According to a second aspect of the invention a method of providing welding type power from a range of input voltages and frequencies, includes receiving an input power signal having an input frequency and an input magnitude.

. . . converted into control power whose magnitude is independent of the dc bus magnitude.

According to a fifth aspect of the invention a method of starting to provide providing welding type power from a range of input voltages and frequencies, includes receiving an input power signal and providing a first dc signal at magnitude responsive to the input's magnitude. A second dc voltage whose magnitude is less than the first dc magnitude is derived from the first dc magnitude. A control converter is controlled with the second dc voltage such that the control converter produces a control dc voltage. An output converter is controlled with the control dc voltage to produce an output signal.

As can be best determined by Applicant, the Office Action appears to be alleging that the "preregulator," which apparently corresponds the preregulator 102 shown in Fig. 1 of Geissler, corresponds to the recited "boost converter," and that the "control power circuit," which apparently corresponds to the controller power supply 105 shown in Fig. 1 of Geissler, corresponds to the recited "a buck converter." For these components of Geissler to correspond to the respective buck and boost converters recited in Claim 19, the controller power supply 105 would perform the precharging function recited in Claim 19. However, the controller power supply 105 does not appear to provide such a function, as it is used to provide power to the controller 104 from a voltage generated by the preregulator 102. Moreover, there is no disclosure or suggestion in Geissler that the preregulator 102 (allegedly corresponding to the recited "boost converter") is "operative to commence generating

a DC voltage on the DC bus from an AC source and/or a DC source after the buck converter circuit precharges the DC bus." Accordingly, Geissler does not provide the teachings alleged in the Office Action and, for at least these reasons, Applicant submits that Claim 19 is patentable over Geissler.

### **The dependent claims are patentable**

Applicant submits that dependent Claims 2-18, 21-24, 26-39 and 41-48 are patentable at least by virtue of the patentability of the respective ones of independent Claims 1, 20, 25 and 40 from which they depend. Applicant further submits that several of these dependent claims are separately patentable.

Applicant notes that, to establish a *prima facie* case of obviousness under 35 U.S.C. § 103, the prior art references cited in the rejection, when combined, must teach or suggest all the recitations of the claims, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings in the manner suggested. M.P.E.P. § 2143. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. § 2143.01, citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). As emphasized by the Court of Appeals for the Federal Circuit, to support combining references, evidence of a suggestion, teaching, or motivation to combine must be clear and particular, and this requirement for clear and particular evidence is not met by broad and conclusory statements about the teachings of references. *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). Thus, in support of a Section 103 rejection, particular evidence from the prior art must be provided showing why a skilled artisan, with no knowledge of the claimed invention, would have combined the cited references in the manner claimed in the rejection. *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000).

The rejections of dependent Claims 3-18, 20-24 and 26-39 fail to meet these requirements. For example, Claim 3, which stands rejected as allegedly obvious over a combination of Itoh, U.S. Patent No. 6,819,576 to Johnson, Jr. ("Johnson") and U.S. Patent No. 6,222,352 to Lenk ("Lenk"), recites:

. . . wherein the precharge circuit comprises:  
a precharge converter circuit operative to charge the first capacitance from an AC source and/or a DC source; and  
a balancer circuit operative to transfer charge between the first and second capacitances.

In rejecting Claim 3, the Office Action states:

Itho (sic) et al. discloses the claimed subject matters as explained in the claims 1, 20 and 25, above, except the utilization of the technique for a balancer circuit, an inductor, a buck converter. Johnson, Jr. teaches the utilization of the similar technique for a balancer circuit (figure 2) and Lenk teaches the utilization of the technique for an inductor and buck converter (figure 1 and Abstract, line 1-5). It would have been obvious one having an ordinary skill in the art at the time of the invention was made to modify Itho (sic) et al.'s power supply by utilizing the technique taught by Johnson, Jr. and Lenk for the purpose of providing a mechanism for controlling voltage excursions in intermediate DC busses and also improve the power factor of the power supply.

Office Action, p. 4.

Respectfully, this is the type of vague and conclusory reasoning that the Federal Circuit has clearly indicated is inadequate to support a *prima facie* case of obviousness under 35 U.S.C. § 103. For example, the Office Action vaguely and contradictorily refers to one or more "techniques" allegedly taught by Johnson and Lenk. In particular, the Office Action refers to "*the similar technique* for a balancer circuit" allegedly taught by Johnson, "*the technique* for an inductor and buck converter" allegedly taught by Lenk, and "*the technique* taught by Johnson, Jr. and Lenk," without any specific indication as to what these alleged "techniques" are. In addition, the Office Action first ascribes what appear to be different "techniques" to Johnson and Lenk and then, in apparent contradiction, refers to "the technique" taught by both references. The Office Action fails to indicate where the cited references allegedly teach the *specific* recitations of Claim 3, and Applicant submits that such teachings are absent from the cited references.

In addition, the Office Action fails to cite any prior art evidence of a suggestion or motivation to combine the references that is actually relevant to the subject matter of Claim 3. In particular, "providing a mechanism for controlling voltage excursions in intermediate DC busses and also improve the power factor of

the power supply" appears to bear little or no relevance to interoperation of a precharge converter circuit and a balancer circuit to support the charge transfers recited in Claim 3 and, thus, provides no evidence of a motivation to combine Itoh, Johnson and Lenk to provide such interoperation of a precharge circuit and a balancer circuit that provides such charge transfers.

In light of the foregoing, Applicant submits that the Office Action fails to make a prima facie showing of obviousness with respect to Claim 3 and, for at least these reasons, the rejection of Claim 3 is erroneous and should be withdrawn. As the rejections of dependent Claims 4-18, 20-24, and 26-39 are based on the same vague grounds applied to Claim 3, Applicant submits that these rejections are erroneous for at least similar reasons and should also be withdrawn. Applicant further notes that these claims include numerous detailed recitations that the Office Action fails to address in any specific manner. Applicant, therefore, defers further discussion of patentable distinctions between these claims and the prior art until more specific bases for rejection of these claims may be provided.

In rejecting dependent method Claims 41-48, the Office Action cites MPEP § 2112.02, which relates to the principle that, if a prior art device is used in a claimed process, then the prior art device can be assumed to anticipate the claimed process, even if the prior art reference does not explicitly disclose the claimed process. The citation of this principle in rejecting Claims 41-48 appears to be inappropriate. Apparently, the Office Action is attempting to assert that method Claims 41-48 are rejected based on the same grounds applied to dependent apparatus Claims 3-18, 20-24 and 26-39. If this is the case, Applicant submits that the rejections of Claims 41-48 are erroneous for at least similar reasons to those discussed above with reference to the rejections of Claims 3-18, 20-24 and 26-39 and that these rejections should, therefore, be withdrawn.

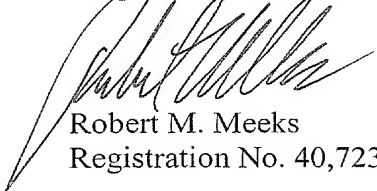
Finally, Applicant notes that no substantive basis for the rejection of Claim 2 appears to have been provided. For at least this additional reason, the rejection of Claim 2 should be withdrawn.

In re: Esa Paatero  
Serial No.: 10/808,007  
Filed: March 24, 2004  
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### Conclusion

As all of the claims are in condition for allowance, Applicant respectfully requests allowance of the claims and passing of the application to issue in due course. Applicant urges the Examiner to contact Applicant's undersigned representative at (919) 854-1400 to resolve any remaining formal issues.

Respectfully submitted,

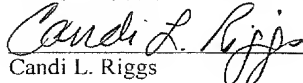


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### CERTIFICATION OF TRANSMISSION

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4) to the U.S. Patent and Trademark Office on April 12, 2007.



Candi L. Riggs